If you are using a printed copy of this procedure, and not the on-screen version, then you <u>MUST</u> make sure the dates at the bottom of the printed copy and the on-screen version match.

The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.

Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ

Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.120.6.e 6 O'Clock (PEER 7) Mode 24 Tests

C-A-OP	M Procedures in	which this Attachme	nt is used.
4.120.6			
	Hand Proc	essed Changes	
HPC No.	<u>Date</u>	Page Nos.	<u>Initials</u>
	Approved:	Signature on	File
	Collic	ler-Accelerator Depa	artment Chairman

PASS ANNUAL ACCEPTANCE TEST PROTOCOL

Division A Software Filename and Checksum: Title:	Checksum:
Division B Software Filename and Checksum: Title:	Checksum:
Initial testing complete:	
Test Team Leader's Name (Print):	Life Number:
Test Team Leader's Name (Sign):	Date://
Acceptance test procedure complete (following repairs and retesting if required):	
Test Team Leader's Name (Print):	Life Number:
Test Team Leader's Name (Sign):	Date://
Test results reviewed by:	
Safety Section Head's Name (Print):	Life Number:
Safety Section Head's Name (Sign):	Date:/
Test results accepted by Radiation Safety Committee:	
RSC Member's Name (Print):	Life Number:
RSC Member's Name (Sign):	Date:/

1.1 Verify necessary conditions for Mode 24

SET VERIFY	CD Key switch for CD Key switch is set for	XY ARCS XY ARCS
PLACE VERIFY	Peer 7 in Mode 16 Peer 7 is in Controlled Access	MODE 16
CLOSE RESET	Peer 7 gates:XGI2, YGI2 and 7GS1 Peer 7 gates: 5GS1, 5EL1, 5GE1, 5ED1, 6GE1, 6GE2, 6MD1, 6ED1,	
VERIFY	6GE3, 6EL1, 6ED2 Peer 7 gates: □ 5GS1, □ 5EL1, □ 5GE1, □ 5ED1, □ 6GE1, □ 6GE2, □ 6MD1, □ 6ED1, □ 6GE3, □ 6EL1, □ 6ED2 are	RESET
SWEEP VERIFY	Peer 7 Zones: $5Z1$, $6Z1$, $6Z2$ Peer 7 Zones: $\Box 5Z1$, $\Box 6Z1$, $\Box 6Z2$ are	SWEPT
PLACE VERIFY RECORD	Peer 7 in Mode 24 Peer 7 is in No Access Duration [secs] of Beam Imminent Alarm	MODE 24
VERIFY	Red No Access Light at entry Gates: □ 5GE1, □ 6GE1, □ 6GE2and □ 6GE3 is	ILLUMINATED
PLACE VERIFY	Peer 7 in Mode 16 Peer 7 is in Controlled Access	MODE 16
REMOVE VERIFY	Reset from gate 5GE1 MCR sees gate 5GE1 is	NOT RESET
PLACE VERIFY RESET VERIFY PLACE	Peer 7 in Mode 24 Attempt to place Peer 7 in No Access Mode Gate 5GE1 MCR sees gate 5GE1 Peer 7 in Mode 24 MCR sees Peer 7 in No Access	FAIL RESET
VERIFY PLACE VERIFY	MCR sees Peer 7 in No Access Peer 7 in Mode 16 Peer 7 is in Controlled Access	MODE 24 MODE 16
REMOVE VERIFY PLACE	Peer 7 in Mode 24	NOT SWEPT
VERIFY SWEEP	Attempt to place Peer 7 in No Access Mode Zone 5Z1	FAIL
VERIFY	MCR sees zone 5Z1	SWEPT
PLACE VERIFY	Peer 7 in Mode 24 MCR sees Peer 7 in No Access	MODE 24
PLACE VERIFY	Peer 7 in Mode 16 Peer 7 is in Controlled Access	MODE 16

Check for test acceptance of Verify necessary conditions for Mode 24

1.2 Verify System Response to Opening a Gate while in Mode 24

PLACE	Peer 5 in Mode 8	
VERIFY	MCR sees Peer 5 in Restricted Access	MODE 8
PLACE	Peer 7 in Mode 24	
VERIFY	MCR sees Peer 7 in No Access	MODE 24
WAIT	For Beam Imminent Alarm to stop sounding	
SET	RHIC Primary Beam Stop Withdraw command	OUT
VERIFY	MCR sees RHIC Injection CD	DISABLED
VERIFY	MCR sees RHIC Permit Link	ENABLED
VERIFY	MCR sees RHIC Injection inhibit	OFF
VERIFY	MCR sees RHIC ring inhibit	OFF
FOLLOW	Test schedule in Table 1, below	

Open gate	Verify peer 7 go to Mode 2	Verify sweep lost	Verify RHIC ring inh ON	Verify peer 7 Permit Link is disabled	Verify RHIC Inj. Inh ON	Place peer 7 in Mode 24 & alarm stop	Set RHIC prmy BS w/draw cmd OUT	Verify RHIC ring inh ON	Verify peer 7 Permit Link is enabled	Verify RHIC Inj. Inh OFF	Goto next gate
5GE1											
6GE1											
6GE3											End of test

Table 1- Test of Gates in Mode 24

☐ Check for test acceptance of System Response to Opening a Gate while in Mode 24

1.3 Verify Entry gates are securely locked in Mode 24

PLACE VERIFY WAIT	Peer 7 in Mode 24 MCR sees Peer 7 in No Access For Beam Imminent Alarm to stop sounding	MODE 24
OPEN VERIFY OPEN	Gate 6GE3 with #14 Key and Simultaneous Release Attempt to open gate 6GE3 with #14 Key and Simultaneous Release Gate 6GE3 with Blue Card	FAIL
VERIFY	Attempt to open gate 6GE3 with Blue Card	FAIL
OPEN VERIFY OPEN	Gate YGI1 with #13 Key and Simultaneous Release Attempt to open gate YGI1 with #13 Key and Simultaneous Release Gate YGI11 with Blue Card	FAIL
VERIFY	Attempt to open gate YGI1 with Blue Card	FAIL

☐ Check for test acceptance of Verify entry gates are securely locked in Mode 24

1.4 Verify System Response to Pulling a Crash Cord while in Mode 24

Test in Zone 5Z1

	PLACE VERIFY WAIT	Peer 7 in Mode 24 MCR sees Peer 7 in No Access For Beam Imminent Alarm to stop sounding	MODE 24
	SET	RHIC Primary Beam Stop Withdraw command	OUT
	VERIFY VERIFY VERIFY VERIFY	MCR sees RHIC Injection CD MCR sees RHIC Permit Link MCR sees RHIC Injection inhibit MCR sees RHIC ring inhibit	DISABLED ENABLED OFF OFF
	PULL	Any Zone 5Z1 crash cord [System #:]	
	VERIFY VERIFY	Peer 7 goes to Sweep is	MODE 2 LOST
	VERIFY VERIFY VERIFY VERIFY	MCR sees RHIC Injection CD MCR sees RHIC Permit Link MCR sees RHIC Injection inhibit MCR sees RHIC ring inhibit	DISABLED DISABLED ON ON
	REARM RESET VERIFY	Crash device Crash at MCR Crash is	RESET
	PLACE VERIFY	Peer 7 in Mode 24 Peer 7 is in Beam Imminent Mode	MODE 24
	PULL	Any Zone 5Z1 crash cord [System #:] when alarm starts sounding	
	VERIFY VERIFY VERIFY PLACE VERIFY REARM RESET VERIFY PLACE VERIFY	Beam Imminent alarm Peer 7 has moved to MCR sees Zone 5Z1 Peer 7 in Mode 8 (Restricted Access) Attempt to go to Mode 8 Crash device Crash at MCR Crash is Peer 7 in Mode 8 MCR sees Peer 7 in Restricted Access	STOPS MODE 2 CRASHED FAIL RESET MODE 8
П	Test in Zone		MODE 0
	PLACE VERIFY WAIT	Peer 7 in Mode 24 MCR sees Peer 7 in No Access For Beam Imminent Alarm to stop sounding	MODE 24
	SET	RHIC Primary Beam Stop Withdraw command	OUT
	VERIFY VERIFY VERIFY	MCR sees RHIC Injection CD MCR sees RHIC Permit Link MCR sees RHIC Injection inhibit	DISABLED ENABLED OFF
ODI	M ATT 4 12	00 (a (V)	Davisian 00

VERIFY MCR sees RHIC ring inhibit		OFF
PULL	Any Zone 6Z1 crash cord [System #:]	
VERIFY VERIFY	Peer 7 goes to Sweep is	MODE 2 LOST
VERIFY VERIFY VERIFY VERIFY	MCR sees RHIC Injection CD MCR sees RHIC Permit Link MCR sees RHIC Injection inhibit MCR sees RHIC ring inhibit	DISABLED DISABLED ON ON
REARM RESET VERIFY	Crash device Crash at MCR Crash is	RESET
PLACE VERIFY	Peer 7 in Mode 24 Peer 7 is in Beam Imminent Mode	MODE 24
PULL	Any Zone 6Z1 crash cord [System #:] when alarm starts sounding	
VERIFY VERIFY VERIFY PLACE	Beam Imminent alarm Peer 7 has moved to MCR sees Zone 6Z1 Peer 7 in Mode 8 (Restricted Access)	STOPS MODE 2 CRASHED
VERIFY REARM	Attempt to go to Mode 8 Crash device	FAIL
RESET VERIFY PLACE	Crash at MCR Crash is Peer 7 in Mode 8	RESET
VERIFY	MCR sees Peer 7 in Restricted Access	MODE 8
Test in Zone		
PLACE VERIFY WAIT	Peer 7 in Mode 24 MCR sees Peer 7 in No Access For Beam Imminent Alarm to stop sounding	MODE 24
SET	RHIC Primary Beam Stop Withdraw command	OUT
VERIFY VERIFY VERIFY VERIFY	MCR sees RHIC Injection CD MCR sees RHIC Permit Link MCR sees RHIC Injection inhibit MCR sees RHIC ring inhibit	DISABLED ENABLED OFF OFF
PULL	Any Zone 6Z2 crash cord [System #:]	
VERIFY VERIFY	Peer 7 goes to Sweep is	MODE 2 LOST
VERIFY VERIFY VERIFY VERIFY	MCR sees RHIC Injection CD MCR sees RHIC Permit Link MCR sees RHIC Injection inhibit MCR sees RHIC ring inhibit	DISABLED DISABLED ON ON
REARM RESET	Crash device Crash at MCR	

	VERIFY	Crash is	RESET
	PLACE	Peer 7 in Mode 24	
	VERIFY	Peer 7 is in Beam Imminent Mode	MODE 24
	PULL	Any Zone 6Z2 crash cord [System #:] when alarm starts sounding	
	VERIFY	Beam Imminent alarm	STOPS
	VERIFY	Peer 7 has moved to	MODE 2
	VERIFY	MCR sees Zone 6Z2	CRASHED
	PLACE	Peer 7 in Mode 8 (Restricted Access)	
	VERIFY	Attempt to go to Mode 8	FAIL
	REARM	Crash device	
	RESET	Crash at MCR	
	VERIFY	Crash is	RESET
	PLACE	Peer 7 in Mode 8	
	VERIFY	MCR sees Peer 7 in Restricted Access	MODE 8
	PLACE	Peer 7 in Mode 24	
	VERIFY	MCR sees Peer 7 in No Access	MODE 24
	WAIT	For Beam Imminent Alarm to stop sounding	
	SET	RHIC Primary Beam Stop Withdraw command	OUT
	VERIFY	MCR sees RHIC Injection CD	DISABLED
	VERIFY	MCR sees RHIC Permit Link	ENABLED
	VERIFY	MCR sees RHIC Injection inhibit	OFF
	VERIFY	MCR sees RHIC ring inhibit	OFF
	Check for	test acceptance of Verify System Response to Pulling a Crash (Cord while in Mode 24
V	erify System I	Response to ODH trip while in Mode 24	
	PLACE	Peer 7 in Mode 24	
	VERIFY	MCR sees Peer 7 in No Access	MODE 24
	WAIT	For Beam Imminent Alarm to stop sounding	
	SET	RHIC Primary Beam Stop Withdraw command	OUT
	VERIFY	MCR sees RHIC Injection CD on CD pg	DISABLED
	VERIFY	MCR sees RHIC Permit Link	ENABLED
	VERIFY	MCR sees RHIC Injection inhibit	OFF
	VERIFY	MCR sees RHIC ring inhibit	OFF
	TRIP	ODH sensor using test button, following Table 2 , below	

1.5

ODH sensor	Trip sen- sor	Verify peer 7 stays in Mode 24	Verify BS with- draw cmd OUT	Verify Rhic ring inh OFF	Verify Permit link is enabled	Verify Rhic Inj. Inh OFF	Verify strobe on	Verify son- alert on	Verify fans & vents off	Go to next test
5AS1/A										
5AS1/B										Next ODH
6AS1/A										
6AS1/B										Next ODH
6AS3/A										
6AS3/B										End of test

Table 2 – Test of ODH sensors in Mode 24

☐ Check for test acceptance of Verify System Response to ODH trip while in Mode 24

1.6 Test Emergency fan ON/OFF controls at 5GE1 in Mode 24

PLACE VERIFY WAIT	Peer 7 in Mode 24 MCR sees Peer 7 in No Access For Beam Imminent Alarm to stop sounding	MODE 24
PRESS	Emergency fan ON button at gate 5GE1	
WAIT	For 90 sec timeout counter	
VERIFY	Fan 5EF2 is	ON
VERIFY	Fan 5EF3 is	ON
VERIFY	Fan 5EF4 is	ON
VERIFY	Vent 5AV1 is	OPEN
VERIFY	Vent 5AV2 is	OPEN
VERIFY	Vent 5AV3 is	OPEN
VERIFY	Fan 4XEF2 is	ON
VERIFY	Fan 4EF1 is	ON
VERIFY	Fan 5EF1 is	ON
VERIFY	Vent 4XAV2 is	OPEN
VERIFY	Vent 4XAV3 is	OPEN
VERIFY	Vent 4AV1 is	OPEN
PRESS	Emergency fan OFF button at gate 5GE1	
WAIT	For 90 sec timeout counter	
VERIFY	Fan 5EF2 is	OFF
VERIFY	Fan 5EF3 is	OFF
VERIFY	Fan 5EF4 is	OFF
VERIFY	Vent 5AV1 is	CLOSED
VERIFY	Vent 5AV2 is	CLOSED
VERIFY	Vent 5AV3 is	CLOSED
VERIFY	Fan 4XEF2 is	OFF
VERIFY	Fan 4EF1 is	OFF

8

		VERIFY VERIFY VERIFY VERIFY	Fan 5EF1 is Vent 4XAV2 is Vent 4XAV3 is Vent 4AV1 is	OFF CLOSED CLOSED CLOSED
		Check for	test acceptance of Emergency fan ON/OFF controls at 5GE1 in Mod	e 24
1.7	1	Test MCR res	et of Emergency ON/OFF at 5GE1 in Mode 24	
		VERIFY	MCR sees Peer 7 in No Access	MODE 24
		PRESS WAIT	Emergency fan ON button at gate 5GE1 For 90 sec timeout counter	
		VERIFY	Fan 5EF2 is	ON
		VERIFY	Fan 5EF3 is	ON
		VERIFY	Fan 5EF4 is	ON
		VERIFY	Vent 5AV1 is	OPEN
		VERIFY	Vent 5AV2 is	OPEN
		VERIFY	Vent 5AV3 is	OPEN
		VERIFY	Fan 4XEF2 is	ON
		VERIFY	Fan 4EF1 is	ON
		VERIFY	Fan 5EF1 is	ON
		VERIFY	Vent 4XAV2 is	OPEN
		VERIFY	Vent 4XAV3 is	OPEN
		VERIFY	Vent 4AV1 is	OPEN
		PRESS	Emergency fan OFF button at MCR	
		WAIT	For 90 sec timeout counter	
		VERIFY	Fan 5EF2 is	OFF
		VERIFY	Fan 5EF3 is	OFF
		VERIFY	Fan 5EF4 is	OFF
		VERIFY	Vent 5AV1 is	CLOSED
		VERIFY	Vent 5AV2 is	CLOSED
		VERIFY	Vent 5AV3 is	CLOSED
		VERIFY	Fan 4XEF2 is	OFF
		VERIFY	Fan 4EF1 is	OFF
		VERIFY	Fan 5EF1 is	OFF
		VERIFY	Vent 4XAV2 is	CLOSED
		VERIFY	Vent 4XAV3 is	CLOSED
		VERIFY	Vent 4AV1 is	CLOSED

Check for acceptance of Test MCR reset of Emergency ON/OFF at 5GE1 in Mode 24

Revision 00

	VERIFY	MCR sees Peer 7 in No Access	MODE 24
	PRESS	Emergency fan ON button at gate 5GE1	
	WAIT	For 90 sec timeout counter	
	VERIFY	Fan 6XEF1 is	ON
	VERIFY	Fan 6XEF2 is	ON
	VERIFY	Fan 6XAV1 is	OPEN
	VERIFY	Vent 6XAV2 is	OPEN
	PRESS	Emergency fan OFF button at gate 5GE1	
	WAIT	For 90 sec timeout counter	
	VERIFY	Fan 6XEF1 is	OFF
	VERIFY	Fan 6XEF2 is	OFF
	VERIFY	Fan 6XAV1 is	CLOSED
	VERIFY	Vent 6XAV2 is	CLOSED
T		or acceptance of Test Emergency fan ON/OFF at 6GE1	Mode 24
Т			
Т	Cest MCR res	set of Emergency ON/OFF at 6GE1 Mode 24 MCR sees Peer 7 in No Access	
Т	est MCR re	set of Emergency ON/OFF at 6GE1 Mode 24	
T	Test MCR res VERIFY PRESS	set of Emergency ON/OFF at 6GE1 Mode 24 MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1	
	Cest MCR res VERIFY PRESS WAIT	set of Emergency ON/OFF at 6GE1 Mode 24 MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1 For 90 sec timeout counter	MODE 24
T	Cest MCR res VERIFY PRESS WAIT VERIFY	set of Emergency ON/OFF at 6GE1 Mode 24 MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1 For 90 sec timeout counter Fan 6XEF1 is	MODE 24 ON
1	Cest MCR resolves VERIFY PRESS WAIT VERIFY VERIFY	set of Emergency ON/OFF at 6GE1 Mode 24 MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1 For 90 sec timeout counter Fan 6XEF1 is Fan 6XEF2 is	MODE 24 ON ON
1	Cest MCR resolves VERIFY PRESS WAIT VERIFY VERIFY VERIFY	set of Emergency ON/OFF at 6GE1 Mode 24 MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1 For 90 sec timeout counter Fan 6XEF1 is Fan 6XEF2 is Fan 6XAV1 is Vent 6XAV2 is Emergency fan OFF button at MCR	MODE 24 ON ON OPEN
1	Cest MCR res VERIFY PRESS WAIT VERIFY VERIFY VERIFY VERIFY	MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1 For 90 sec timeout counter Fan 6XEF1 is Fan 6XEF2 is Fan 6XAV1 is Vent 6XAV2 is	MODE 24 ON ON OPEN
T	VERIFY PRESS WAIT VERIFY VERIFY VERIFY VERIFY VERIFY VERIFY PRESS WAIT VERIFY	MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1 For 90 sec timeout counter Fan 6XEF1 is Fan 6XEF2 is Fan 6XAV1 is Vent 6XAV2 is Emergency fan OFF button at MCR For 90 sec timeout counter	MODE 24 ON ON OPEN OPEN OPF
1	VERIFY PRESS WAIT VERIFY VERIFY VERIFY VERIFY VERIFY PRESS WAIT VERIFY	MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1 For 90 sec timeout counter Fan 6XEF1 is Fan 6XEF2 is Fan 6XAV1 is Vent 6XAV2 is Emergency fan OFF button at MCR For 90 sec timeout counter Fan 6XEF1 is	MODE 24 ON ON OPEN OPEN OFF
1	VERIFY PRESS WAIT VERIFY VERIFY VERIFY VERIFY VERIFY VERIFY PRESS WAIT VERIFY	MCR sees Peer 7 in No Access Emergency fan ON button at gate 5GE1 For 90 sec timeout counter Fan 6XEF1 is Fan 6XEF2 is Fan 6XAV1 is Vent 6XAV2 is Emergency fan OFF button at MCR For 90 sec timeout counter	MODE 24 ON ON OPEN OPEN OFF

1.8

Test Emergency fan ON/OFF at 6GE1 Mode 24

1.10 Test Emergency fan ON/OFF at gate 6GE3 Mode 24

VERIFY	MCR sees Peer 7 in No Access	MODE 24
PRESS	Emergency fan ON button at gate 6GE3	
WAIT	For 90 sec timeout counter	
VERIFY	Fan 6EF1 is	ON
VERIFY	Fan 6EF2 is	ON
VERIFY	Fan 6EF3 is	ON
VERIFY	Fan 7EF1 is	ON
VERIFY	Vent 6AV1 is	OPEN
VERIFY	Vent 6AV2 is	OPEN
VERIFY	Vent 6AV3 is	OPEN
VERIFY	Vent 7AV1 is	OPEN
VERIFY	Fan 7EF2 is	ON
VERIFY	Fan 7EF3 is	ON
VERIFY	Vent 7AV2 is	OPEN
VERIFY	Vent 7AV3 is	OPEN
VERIFY	Vent 7AV4 is	OPEN
VERIFY	Vent 7AV5 is	OPEN
PRESS	Emergency fan OFF button at gate 6GE3	
WAIT	For 90 sec timeout counter	
VERIFY	Fan 6EF1 is	OFF
VERIFY	Fan 6EF2 is	OFF
VERIFY	Fan 6EF3 is	OFF
VERIFY	Fan 7EF1 is	OFF
VERIFY	Vent 6AV1 is	CLOSED
VERIFY	Vent 6AV2 is	CLOSED
VERIFY	Vent 6AV3 is	CLOSED
VERIFY	Vent 7AV1 is	CLOSED
VERIFY	Fan 7EF2 is	OFF
VERIFY	Fan 7EF3 is	OFF
VERIFY	Vent 7AV2 is	CLOSED
VERIFY	Vent 7AV3 is	CLOSED
VERIFY	Vent 7AV4 is	CLOSED
VERIFY	Vent 7AV5 is	CLOSED

☐ Check for test acceptance of Emergency fan ON/OFF at gate 6GE3 Mode 24

1.11 Test MCR reset of Emergency fan ON/OFF at gate 6GE3 Mode 24

VERIFY	MCR sees Peer 7 in No Access	MODE 24
PRESS	Emergency fan ON button at gate 6GE3	
WAIT	For 90 sec timeout counter	
VERIFY	Fan 6EF1 is	ON
VERIFY	Fan 6EF2 is	ON
VERIFY	Fan 6EF3 is	ON
VERIFY	Fan 7EF1 is	ON
VERIFY	Vent 6AV1 is	OPEN
VERIFY	Vent 6AV2 is	OPEN
VERIFY	Vent 6AV3 is	OPEN
VERIFY	Vent 7AV1 is	OPEN
VERIFY	Fan 7EF2 is	ON
VERIFY	Fan 7EF3 is	ON
VERIFY	Vent 7AV2 is	OPEN
VERIFY	Vent 7AV3 is	OPEN
VERIFY	Vent 7AV4 is	OPEN
VERIFY	Vent 7AV5 is	OPEN
PRESS	Emergency fan OFF button at MCR	
WAIT	For 90 sec timeout counter	
VERIFY	Fan 6EF1 is	OFF
VERIFY	Fan 6EF2 is	OFF
VERIFY	Fan 6EF3 is	OFF
VERIFY	Fan 7EF1 is	OFF
VERIFY	Vent 6AV1 is	CLOSED
VERIFY	Vent 6AV2 is	CLOSED
VERIFY	Vent 6AV3 is	CLOSED
VERIFY	Vent 7AV1 is	CLOSED
VERIFY	Fan 7EF2 is	OFF
VERIFY	Fan 7EF3 is	OFF
VERIFY	Vent 7AV2 is	CLOSED
VERIFY	Vent 7AV3 is	CLOSED
VERIFY	Vent 7AV4 is	CLOSED
VERIFY	Vent 7AV5 is	CLOSED

[☐] Check for test acceptance of MCR reset of Emergency fan ON/OFF at gate 6GE3 Mode 24

1.12	7	Test local fan c	controls in service building 1006B Mode 24	
		VERIFY	MCR sees Peer 7 in No Access	MODE 24
		PRESS	Fan ON button at fan box	
		VERIFY	1006B fan is	ON
		VERIFY	1006B vent is	OPENED
		TURN OFF	1006D for using MCD For OFF button	
		VERIFY	1006B fan using MCR Fan OFF button Attempt to turn off 1006B fan using MCB Fan OFF button	FAIL
			Attempt to turn off 1006B fan using MCR Fan OFF button	FAIL
	_	PRESS	Fan OFF button at fan box 1006B fan is	OFF
		VERIFY		OFF
		VERIFY	1006B vent is	CLOSED
		Check for	test acceptance of local fan controls in service building 1006B Mod	le 24
1.13	T	est Division A	loss of Remote I/O in Mode 24	
2020		VERIFY	CD Key switch is set for	XY ARCS
		V EXXII I	OB TREY SWITCH IS SECTION	111 11100
		VERIFY	MCR sees Peer 7 in No Access	MODE 24
		SET	RHIC Primary Beam Stop Withdraw command	OUT
		VERIFY	MCR sees RHIC Injection CD on CD pg	DISABLED
		VERIFY	MCR sees RHIC Permit Link	ENABLED
		VERIFY	MCR sees RHIC Injection inhibit	OFF
		VERIFY	MCR sees RHIC ring inhibit	OFF
	Ш	UNPLUG	Remote I/O cable from Scanner module in Peer 7A	Off
		UNILUG	Remote 10 capie from Scamer module in 1 eer 7A	
		VERIFY	MCR sees Peer 7 Div A CD RIO on H/W pg	FAULT
		VERIFY	MCR sees Peer 7 Div A go to	MODE 2
		VERIFY	MCR sees RHIC Injection CD on CD pg	DISABLED
		VERIFY	MCR sees Div A RHIC Permit Link	DISABLED
		VERIFY	MCR sees Div A RHIC Injection inhibit	ON
		VERIFY	MCR sees Div A RHIC ring inhibit	ON
		VERIFY	MCR sees Div A RHIC Injn rhbk latch	ON
		VERIFY	MCR sees Div A RHIC rhbk latch	ON DEACHDACK
		VERIFY	MCR sees on CD pg W	REACHBACK
		VERIFY	MCR sees on CD pg RHIC	REACHBACK
		VERIFY	MCR sees on CD pg BS G3	IN
		REPLACE	Remote I/O cable at Scanner module in Peer 7A	
		RESET	NG CRIT I/O condition at MCR	
		VERIFY	MCR sees CD RIO	OK
		PLACE	Peer 7 in Mode 2	
		VERIFY	MCR sees Peer 7 in Safe Access	MODE 2
			B = 1.34 1.46	
		PLACE	Peer 7 in Mode 16	
		VERIFY	MCR sees Peer 7 in Controlled Access	MODE 16
		Check for	test acceptance of Division A loss of Remote I/O in Mode 24	

1.14 Test Division B loss of Remote I/O in Mode 24

VERIFY	CD Key switch is set for	XY ARCS
VERIFY	MCR sees Peer 7 Div B still in No Access	MODE 24
SET	RHIC Primary Beam Stop Withdraw command	OUT
VERIFY VERIFY VERIFY VERIFY UNPLUG	MCR sees RHIC Injection CD on CD pg MCR sees RHIC Permit Link MCR sees RHIC Injection inhibit MCR sees RHIC ring inhibit Remote I/O cable from Scanner module in Peer 7B	DISABLED ENABLED OFF OFF
VERIFY	MCR sees Peer 7 Div B CD RIO on H/W pg	FAULT
VERIFY	MCR sees Peer 7 Div B go to	MODE 2
VERIFY VERIFY VERIFY VERIFY VERIFY VERIFY VERIFY VERIFY	MCR sees RHIC Injection CD on CD pg MCR sees Div B RHIC Permit Link MCR sees Div B RHIC Injection inhibit MCR sees Div B RHIC ring inhibit MCR sees Div B RHIC Injn rhbk latch MCR sees Div B RHIC rhbk latch MCR sees on CD pg W MCR sees on CD pg RHIC MCR sees on CD pg BS G3	DISABLED DISABLED ON ON ON ON REACHBACK REACHBACK
REPLACE	Remote I/O cable at Scanner module in Peer 7B	
RESET VERIFY	NG CRIT I/O condition at MCR MCR sees CD RIO	ОК
PLACE VERIFY	Peer 7 in Mode 2 MCR sees Peer 7 in Safe Access	MODE 2
PLACE VERIFY	Peer 7 in Mode 16 MCR sees Peer 7 in Controlled Access	MODE 16
Check for	test acceptance of Division B loss of Remote I/O in Mode 24	

1.15 Sweep tests in Mode 24

RESET	Peer 7 gates: 5GS1, 5EL1, 5GE1, 5ED1, 6GE1, 6GE2, 6MD1, 6ED1, 6GE3, 6EL1, 6ED2	
VERIFY	Peer 7 gates: □ 5GS1, □ 5EL1, □ 5GE1, □ 5ED1, □ 6GE1,	RESET
	\square 6GE2, \square 6MD1, \square 6ED1, \square 6GE3, \square 6EL1, \square 6ED2 are	
SWEEP	Peer 7 Zones: 5Z1, 6Z1, 6Z2	
VERIFY	Peer 7 Zones: \Box 5Z1, \Box 6Z1, \Box 6Z2 are	SWEPT
PLACE	Peer 7 in Mode 24	
VERIFY	Peer 7 is in No Access	MODE 24
PLACE	Peer 7 in Mode 16	
VERIFY	Peer 7 is in Controlled Access	MODE 16
FOLLOW	Test Schedule in Table 3, below	

Zone	Gate	Open gate w/o SR	Verify sweep lost	Verify cannot sweep with gate open	Close gate	Force sweep	Verify cannot go to Mode 24	Reset gate	Verify can go to Mode 24	Go to Mode 16 & next gate
5 Z 1	5GE1									
5 Z 1	YGI2						N/A	N/A		
6 Z 1	6GE1									
6 Z 1	6MD1					N/A				
6 Z 2	6GE3									
6 Z 2	7GS1						N/A	N/A	N/A	N/A

Table 3 – Sweep tests in Mode 24

☐ Check for test acceptance of Sweep tests in Mode 24

1.16 Chipmunk Tests in Mode 24

ATTACH PLACE VERIFY WAIT	Test Box to Chipmunk prior to test Peer 7 in Mode 24 MCR sees Peer 7 in No Access For Beam Imminent Alarm to stop sounding	MODE 24
SET	RHIC Primary Beam Stop Withdraw command	OUT
VERIFY VERIFY VERIFY VERIFY	MCR sees RHIC Injection CD MCR sees RHIC Permit Link MCR sees RHIC Injection inhibit MCR sees RHIC ring inhibit	DISABLED ENABLED OFF OFF

C'munk	Press & verify div A trip	Verify peer 7 stays in mode 24	Verify div A Rhic ring inh ON	Verify div A Rhic permit link disabled	Verify div A Rhic Inj. Inh ON	Reset all Systems & cycle BS cmd to OUT	Verify div A Rhic ring inh OFF	Verify div A Rhic permit link enabled	Verify div A Rhic Inj. Inh OFF	Goto table 5 for div B trip
C33										
C36										

Table 4 – Division A trip test in Mode 24

C'munk	Press & verify div B trip	Verify peer 7 stays in mode 24	Verify div B Rhic ring inh ON	Verify div B Rhic permit link disabled	Verify div B Rhic Inj. Inh ON	Reset all Systems & cycle BS cmd to OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. inh OFF	Goto table 6 for div A fails
C33										
C36										

Table 5 – Division B Trip test in Mode 24

C'munk	Press & verify div A fails	Verify peer 7 divA goes to mode 2	Verify div A Rhic ring inh ON	Verify div A Rhic permit link disabled	Verify div A Rhic Inj. Inh ON	Reset all systms & place peer 7 div A & B in Mode 2	Place peer 7 in mode 24 & alarm stop	Verify pmry BS with-draw cmd is OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. Inh OFF	Go to table 7 for div B fails
C33												
C36												

Table 6 – Division A Fails test in Mode 24

C'munk	Press & verify div B fails	Verify peer 7 divB goes to mode 2	Verify div B Rhic ring inh ON	Verify div B Rhic permit link disabled	Verify div B Rhic Inj. Inh ON	Reset all systms & place peer 7 div A & B in Mode 2	Place peer 7 in mode 24 & alarm stop	Verify pmry BS with-draw cmd is OUT	Verify div A & B Rhic ring inh OFF	Verify div A & B Rhic permit link enabled	Verify div A & B Rhic Inj. Inh OFF	See end of test instrns below
C33												
C36												

Table 7 – Division B Fails test in Mode 24

End of Test Instructions: DETACH Test Box from Chipmunk after test CONNECT Cable to Chipmunk RESET Chipmunk faults at MCR VERIFY MCR sees Chipmunk OK ATTACH Test Box to next Chipmunk for test / or end Chipmunk test START Test sequence at Table 4 Check for acceptance of Chipmunk Tests in Mode 24

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing:		
	Date://	
TTL: Sign for completion of final testing:		
	Date: / /	